

## REMARKS

This application was originally filed on 21 December 1999 with ten claims, three of which were written in independent form. No claims have been allowed. Claim 10 was amended on 21 February 2002. Claims 11-13 were added on 17 June 2003. Claim 1 was amended on 22 March 2004.

Claims 1-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,309,073 to Nakayama *et al.* ("Nakayama") in view of U.S. Patent No. Oida *et al.* ("Oida") and in further view of U.S. Patent No. 6,252,638 to Johnson *et al.* ("Johnson"). The applicant respectfully disagrees.

"A person shall be entitled to a patent unless," creates an initial presumption of patentability in favor of the applicant. 35 U.S.C. § 102. "We think the precise language of 35 U.S.C. § 102 that, 'a person shall be entitled to a patent unless,' concerning novelty and unobviousness, clearly places a burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103, see *Graham and Adams*." *In re Warner*, 379 F.2d 1011, 1016 (C.C.P.A. 1967) (referencing *Graham v. John Deere Co.*, 383 U.S. 1 (1966) and *United States v. Adams*, 383 U.S. 39 (1966)). "As adapted to *ex parte* procedure, *Graham* is interpreted as continuing to place the 'burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103'." *In re Piasecki*, 745 F.2d 1468 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d at 1016).

"The prima facie case is a procedural tool which, as used in patent examination (as by courts in general), means not only that the evidence of the prior art would reasonably allow the conclusion the examiner seeks, but also that the prior art compels such a conclusion if the applicant produces no evidence or argument to rebut it." *In re Spada*, 911 F.2d 705, 708 n.3 (Fed. Cir. 1990).

"Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but

unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.” *Graham v. Deere*, 383 U.S. 1, 17-18 (1966).

“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In *re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). ‘All words in a claim must be considered in judging the patentability of that claim against the prior art.’ In *re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).” MPEP § 2143.03.

“To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985).

The Examiner has failed to meet the duty of presenting a *prima facie* obviousness rejection. With respect to Claim 1, the Examiner stated, “Nakayama teaches a projection type display apparatus (1) see including a light source (2), a color separating optical system (4) for separating a white beam (w) into color beams red, blue and green (R, G, B), three liquid crystal panels 5R, 5G and 5B as light valves for modulating the color beams, a color synthesizing optical system (6) for synthesizing the modulated color beams, and a projection lens (7) for magnifying in projecting the synthesized beam on to the screen (8). See col. 6, lines 18-24.”

The applicant respectfully submits the Examiner's analysis completely ignores the claim language.

The Examiner stated, “Nakayama does not disclose “a color modulator comprised of a stack of at least two dielectric layers and at least three transparent electrodes, wherein a voltage applied to the electrodes limits the wavelengths of light permitted to continue on the light path.’ Oida teaches a first, second and a third color filter layers (4R, 4G and 4B) which are formed in correspondence to the first, the second and the third X electrodes, and are transparent to red light, green light and blue light respectively. Oida also teaches transparent dielectric layer (5) covering

the X electrodes in the color filters, and the dielectric layer (14) covering Y electrodes. See Fig. 11, Fig. 12, col. 17, lines 52-67 and col. 18, lines 1-9."

The applicant respectfully submits that once again the Examiner's analysis has completely ignored the language of the claims. Oida, in combination with Nakayama, does not show, teach, or suggest a "color modulator comprised of a stack of at least two dielectric layers and at least three transparent electrode layers" as recited by Claim 1.

The Examiner further stated, "Therefore, it would have been obvious to one heading skill in the art at the time the invention was made to modify Nakayama's projection type display system to adapt Oida's color filtering with respect to X and Y electrodes as shown on Fig. 11. One would have been motivated in view of the suggestion in Oida that the color filtering mechanism as configured in Figs. 11-12 is the same as the desired color modulator with two dielectric layers and three transparent electrode layers. The use of color filtering helps achieve a display system better color fidelity is taught by Oida."

The applicant respectfully submits to this clearly is not a suggestion to combine the two references or modify either reference to obtain the recited claim limitations. The Examiner is merely substituting Oida's plasma panel for Nakayama's color separation apparatus. Not only is there no suggestion in the prior art to make this modification, it is far from clear how substituting Oida's plasma display panel could even be made to work in Nakayama's display system. The Examiner's only hint of a suggestion in the art, "The use of color filtering helps achieve a display system better color fidelity is taught by Oida" is unsupported by the prior art.

Examiner stated, "Nakayama does not teach a voltage applied to the electrodes limiting the wavelengths of light permitted to continue on the light path. Johnson on the other hand teaches light in the spectrum F, having a modulation state of polarization P.sub.m. and have its polarization state selectively altered depending upon the voltage applied to the modulator (10). See col. 7, lines 12-17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakayama's display system to adapt Johnson's technique of altering the polarization state of light. One would have been motivated in view of the suggestion in Johnson that selectively altering polarization state light resulting from a voltage application is functionally equivalent to limiting wavelengths of light resulting from voltage

application. The use of altering polarization state of light helps function color a display system is taught in Johnson."

Johnson, in combination with Oida, and Nakayama does not show, teach, or suggest a "color modulator comprised of a stack of at least two dielectric layers and at least three transparent electrode layers" as recited by Claim 1. Merely listing various ways others modulate light or create color displays—especially when such other techniques are mutually exclusive—cannot render Claim 1 obvious to one of ordinary skill in the art.

Claims 2-6 depend from Claim 1 and should be deemed allowable for that reason and on their own merits.

With respect to Claim 2, the Examiner stated, "Nakayama teaches the color synthesizing optical system (6) consisting of a dichroic prism. As shown in Fig. 1, the light valves (5R, 5G, 5B) are located between an illumination optical system (2A) and projection lens (7). See col. 7, lines 49-55."

The applicant respectfully submits Claim 2 should be deemed allowable for the very reasons stated by the Examiner. Claim 2 recites, "a prism assembly for spatially separating an illumination segment of said light path from a projection segment of said light path." Nakayama's light valves separate the illumination path (through 2A, 4, and 9) from the projection path (through 6 and 7). Therefore, Nakayama's prism cannot "spatially separate[e] an illumination segment of said light path from a projection segment of said light path" as recited by Claim 2.

With respect to Claim 3, the Examiner stated, "Nakayama teaches a color synthesizing optical system (6) that is of a mirror composite having dichroic mirrors arranged in "X" shape."

The applicant respectfully submits Claim 3 should be deemed allowable for the very reasons stated by the Examiner. Claim 3 recites, "said color modulator is fabricated on a face of said prism assembly." Nakayama's prism is not a "color modulator on said light path that limits the wavelengths of light permitted to continue on said light path" but rather a recombiner.

With respect to Claim 4, the Examiner stated, "Nakayama teaches three liquid crystal panels 5R, 5G, and 5B as light valves for modulating the color beams, and a color synthesizing optical system (6) for synthesizing the modulated color beams."

The applicant respectfully submits Claim 4 should be deemed allowable for the very reasons stated by the Examiner. Claim 4 recites the "color modulator is fabricated on said spatial light modulator." As the Examiner points out, Nakayama's color combining prism (6), color modulator (4), and spatial light modulator (5) are all separate devices.

With respect to Claim 5, the Examiner stated, "Nakayama teaches projection type display system which includes the use of concave mirror (923) as shown in Fig. 15A."

The applicant respectfully submits Claim 5 should be deemed allowable for the very reasons stated by the Examiner. Claim 5 recites the "spatial light modulator is a deformable mirror device." As the Examiner points out, Nakayama's does not show, teach, or suggest a deformable mirror device, and even the non-deformable mirrors that are taught by Nakayama are part of a light guide system 9F which is physically, functionally, and conceptually separate from the spatial light modulator 5G of Nakayama.

Claims 7-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,492,065 to Nakagaki *et al.* ("Nakagaki") in view of U.S. Patent No. 5,992,320 to Kosaka *et al.* ("Kosaka"). The applicant respectfully disagrees.

The Examiner stated, "Regarding claims 7, 10 and 11, Nakagaki teaches a method of producing hologram color filter for diffracting and dispensing incident white light into lights of three primary colors of red, green and blue such that the method includes the use of a glass substrate and plurality of layers. See col. 2, lines 50-63, col. 7, lines 20-36 and Fig. 2. Nakagaki discloses a hologram color filter (20) with respect to an application of a voltage corresponding to a picture element between the picture elements electrode layer 5 and transparent electrode layer 4 of the incident side. See col. 7, lines 50-60."

The applicant respectfully submits, Nakagaki teaches a "space light modulating element 3" which is a transparent electrode layer 4, picture element electrode layer 5, and liquid crystal 6.

The Examiner further states, "Nakagaki does not teach alternating layers of electrodes and dielectric materials. Kosaka on the other hand teaches a first transfer sheet, which is electrode-forming layer, and second transfer sheet, which is a dielectric forming layer. See col. 2, 18-21 and lines 57-62."

The Examiner's admission that Nakagaki does not teach alternating layers of electrodes

and dielectric materials” is not cured by Kosaka merely teaching an electrode forming layer and a dielectric forming layer. The prior art, taken as a whole does not show, teach, or suggest the limitations of Claim 7, including “alternating layers of electrodes and dielectric materials, wherein voltages applied to said electrodes are operable to filter an incident white light beam into a light beam of one of three primary colors” or Claim 10, including “filtering said beam of white light to produce a primary color beam of light, said filtering step performed by passing said beam of white light through a stack of at least two dielectric layers, at least one of said dielectric layers exposed to an electric field” or Claim 11, including “voltages applied to said electrodes are operable to filter an incident white light beam into a light beam sequentially comprised of each of three primary colors.”

The Examiner further stated, “It would have been obvious to utilize the hologram color filter described above with respect to Kosaka’s dielectric forming layers in order to achieve “primary color beam of light alternating between three primary colors.” Far from being obvious to combine, it is far from obvious how to combine a liquid crystal addressed hologram color filter with a transfer sheet which is suitable for forming high-precision patterns. Additionally, even if the combination yielded the claimed invention, which it clearly does not, the Examiner has failed to show the required teaching or suggestion in the prior art to made the combination or modification.

Claims 8 and 9 depend from Claim 7 and should be deemed allowable for that reason and on their own merits. Claims 12 and 13 depend from Claim 11 and should be deemed allowable for that reason and on their own merits.

With respect to Claims 8 and 12, the Examiner stated, “Kosaka teaches a dielectric-forming layer with respect to use of polymers or copolymers or other materials. See col. 13, line 53-65.” The applicant respectfully submits that this is inaccurate. The cited passage of Kosaka actually states, “The thermoplastic resin used herein may be those referred to in connection with the aforesaid concave pattern-forming material. However, it is preferable to use polymers or copolymers comprising at least one of methyl acrylate, methyl methacrylate, ethyl acrylate, ethyl methacrylate, n-propyl acrylate, n-propyl methacrylate, isopropyl acrylate, isopropyl methacrylate, n-butyl methacrylate, n-butyl acrylate, sec-butyl acrylate, sec-butyl methacrylate,

isobutyl acrylate, isobutyl methacrylate, tert-butyl acrylate, tert-butyl methacrylate, hydroxyethyl acrylate, hydroxyethyl methacrylate, hydroxypropyl acrylate, hydroxypropyl methacrylate, 2-ethylhexyl methacrylate, and 2-ethylhexyl acrylate, ethyl cellulose, and polybutene derivatives.”

Claims 8 and 12 recite, “said dielectric material are selected from the group consisting of,  $\text{LiNbO}_3$ ,  $\text{LiTaO}_3$ ,  $\text{NH}_4\text{H}_2\text{PO}_4$ ,  $\text{KH}_2\text{PO}_4$ , and  $\text{CdTe}$ .” Thus, in spite of a laundry list of resins, Kosaka does not appear to show, teach, or suggest the limitations of Claims 8 and 12.

With respect to Claims 9 and 13, the Examiner stated, “Kosaka teaches pattern-wise electrode-forming layer on a glass substrate. See col. 34, lines 64-67.” The applicant respectfully submits the Examiner has failed to make a prima facie case of obviousness as the Examiner does not associate the teachings of Kosaka with the limitations of Claims 9 and 13 which recite “electrodes formed of Indium Tin Oxide.”

For the reasons stated above, the Examiner has not met the burden of presenting a prima facie case of obviousness. Therefore, the rejection under 35 U.S.C. § 103(a) is defective and should be withdrawn.

In view of the amendments and the remarks presented herewith, it is believed that the claims currently in the application accord with the requirements of 35 U.S.C. § 112 and are allowable over the prior art of record. Therefore, it is urged that the pending claims are in condition for allowance. Reconsideration of the present application is respectfully requested.

Respectfully submitted,



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